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Studies on the Helminth Fauna of Kyushu

Part 6. Cestode Parasites of Wild Birds from Ôita Prefecture*

With 20 Text-figures

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ABSTRACT The following species are described in this part of the series: a new *Paracradotaenia* parasitic in *Falco pereginus japonensis*, a new *Raillietina* (*Paroniella*) in *Accipiter qularis qularis*, a new *Passerilepis* parasitic in *Corvus macrorhynchos japonensis*, a new *Mayhewia* parasitic in *Anas platyrhynchos platyrhynchos*, a new *Hymenolepis* parasitic in *Phasianus soemmeringii scintillans* and a species of the genus *Mayhewia* in *Rostratula benghalensis benghalensis*, a species of the genus *Dilepis* in *R. b. benghalensis* and a species of the genus *Orthoskryabinia* in *Otus scops japonicus*.

The present paper deals with the results obtained from the study of cestodes from wild birds collected in Ôita Prefecture during the years 1978–1979. All the measurements are given in millimetres.

Paracladotaenia falcoris sp. nov.

(Figs. 1–4)

Eight specimens from the small intestine of Siberian peregrine falcon, *Falco peregrinus japonensis*, 320–369 in length and 2.1–2.3 in maximum breadth at gravid ploglottides. Scolex 0.415–0.490 in transverse diameter, with a disc-shaped unarmed rostellum, 0.077 by 0.097. Suckers discoid, measuring 0.124–0.138 in diameter. Neck 1.1–1.2 long and 0.27–0.29 wide. Proglottides imbricate. Immature proglottides broader than long, but mature, gravid and senile ones definitely longer than broad. Irregularly alternate genital pores lie in front of the middle of proglottid

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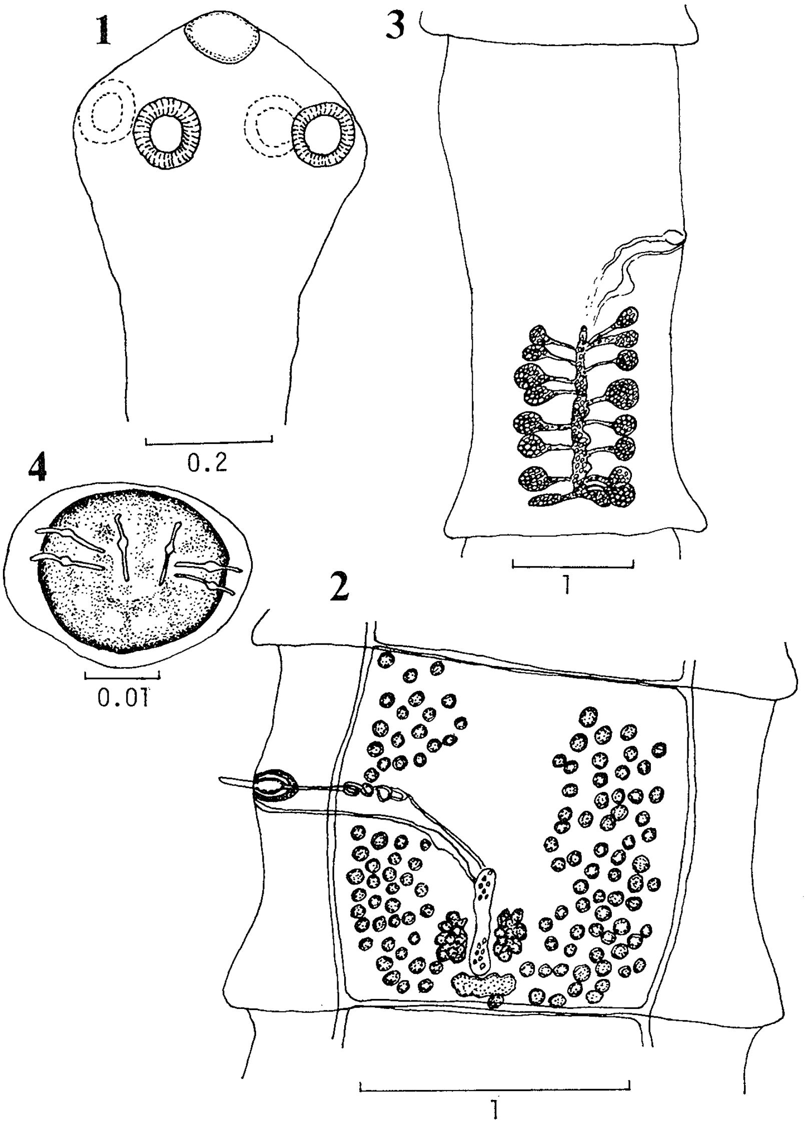
margin.

Rounded testes, measuring 0.035–0.042 in diameter, vary in number from 130 to 150; 59–80 on the poral side and 58–73 on the aporal side. They massed together in two submedian fields along the longitudinal excretory canals. Pyriform cirrus pouch, measuring 0.098–0.105 by 0.077–0.105, has a thin muscular wall chiefly composed of very fine circular fibers and contains a protrusible cirrus. Internal and external seminal vesicles absent. In mature proglottids vas deferens is convoluted behind the proximal end of cirrus pouch. Vagina extends from genital atrium to ovary on a curve, its internal extremity being dilated into a seminal receptacle. It



Figs. 1–4. *Paracladotaenia falcoris.* sp. nov.——1. Scolex. 2. Mature proglottid. 3. Gravid proglottid. 4. Egg.

measures 0.032–0.039 by 0.018–0.025.

Relatively small ovary consists of two compact symmetrical lobes with an irregular outline, measuring 0.182–0.196 by 0.098–0.105. Globular vitelline gland measures 0.119–0.126 by 0.098 and lying at the posterior part of proglottid. Uterus in mature proglottid begins as a simple median tube which does not reach the anterior end of the proglottid. In gravid and senile proglottides, it consists of a median stem with 7–9 smaller lateral secondary pouch on each side, occupying the posterior half of medullary parenchyma.

Egg oval or rounded, measuring 0.035–0.039 by 0.028–0.032 and no radially striated embryonic shell. Onchosphere 0.021–0.028 in diameter and embryonic hook about 0.011 long.

Host. Siberian peregrine falcon (*Falco peregrinus japonensis*).

Habitat. Small intestine.

Locality and date. Saganoseki-machi, Ôita Prefecture; February 2, 1979.

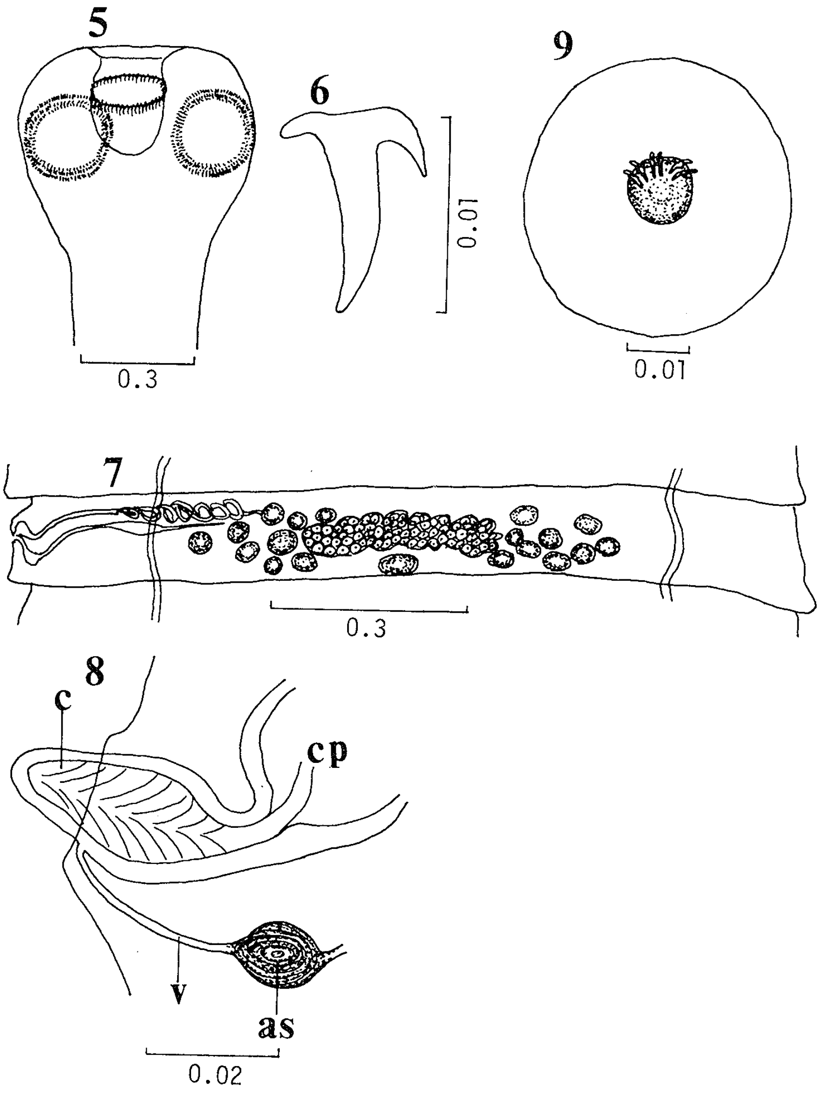
Type depository. Biological Laboratory, Nara University of Education, Nara Japan.

Discussion. The present material agrees with the description of the genus *Paracladotaenia* as given by Yamaguti (1935). The genus *Paracladotaenia* includes the following three species: *P. accipitris* Yamaguti, 1935, *P. cathartis* (Hwang, 1961) and *P. mustelis* Sawada et Kugi, 1979. The characteristic feature of the present species is that the anterior end of the median trunk of uterus does not reach the front edge of proglottid. Our species also differs from the above-mentioned three species in the following charactors: 1) *P. accipitris* has 38–48 testes and *P. cathartis* has 74–100 testes, while the present species bears 130–150 testes. 2) The ovary of *P. mustelis* measures 0.290–0.304 by 0.346, which is twice as large as that of our species (0.182–0.196 by 0.098–0.105). 3) The vitelline gland of *P. mustelis* is irregularly flat, while in the present species it is irregulary globular.

Raillietina* (*Raillietina*) *oitensis sp. nov.

(Figs. 5–9)

Strobila length 219–226, maximum width 0.9–1.4. Scolex rounded, measuring 0.484 long and 0.470 wide, with retractile elliptic rostellum 0.105 by 0.456, armed with 2 rows of hammer-shaped rostellar hooks numbering 130–150, 0.014–0.018 in length. Suckers rounded, measuring 0.166 in diameter, armed marginally with 4–5 rows of minute hooks, about 0.014 long. Neck 1.4 long and 0.235 wide. Genital pores unilateral, located slightly anterior to the middle of each proglottid margin. Mature proglottides 1.4–1.5 long and 0.138–0.166 wide. They contain 15–16 testes, measuring 0.049–0.070 by 0.035–0.043, divided into two groups on each side of proglottides; 8–9 testes in aporal side and 6–7 in poral side. Cirrus pouch pyriform, measuring 0.105–0.112 long and 0.028–0.035 wide. Cirrus aspinous, measuring 0.028 by 0.042. Vagina open posterior to male genital opening, slender at first but swelling out into accessory sac at distant of 0.042–0.053 from its opening.



Figs. 5–9. *Raillietina* (*Raillietina*) *oitensis*. sp. nov. —— 5. Scolex. 6. Rostellar hook. 7. Mature proglottid. 8. Accessory sac. 9. Egg.

Ovary lobed, composed of a number of follicles, located in the middle of proglottides, on median line. Its transverse diameter 0.360–0.401. Vitelline gland irregularly reniform, 0.049–0.050 by 0.097–0.124 located close below ovary.

Gravid proglottides, 1.43–1.58 long and 0.315–0.350 wide, containing 78–90 egg capsules. Egg capsules occupy nearly whole proglottides with the exception of lateral margin. Each capsule contains 4–6 oval eggs, measuring 0.032–0.035 in diameter. Onchosphere spherical, 0.014–0.018 in diameter; embryonic hooks 0.007 long.

Host. Japanese sparrow hawk (*Accipiter gularis gularis*).

Habitat. Small intestine.

Locality and *date*. Ôita City; April 2, 1979.

Type depository. Biological Laboratory, Nara University of Education, Nara, Japan.

Discussion. So far as known to the authors, the species belonging to *Raillietina* (*Raillietina*) amount to 160 in number. Of these, 9 were described from falconiform birds, but the present species distinctly differs from the 9 species.

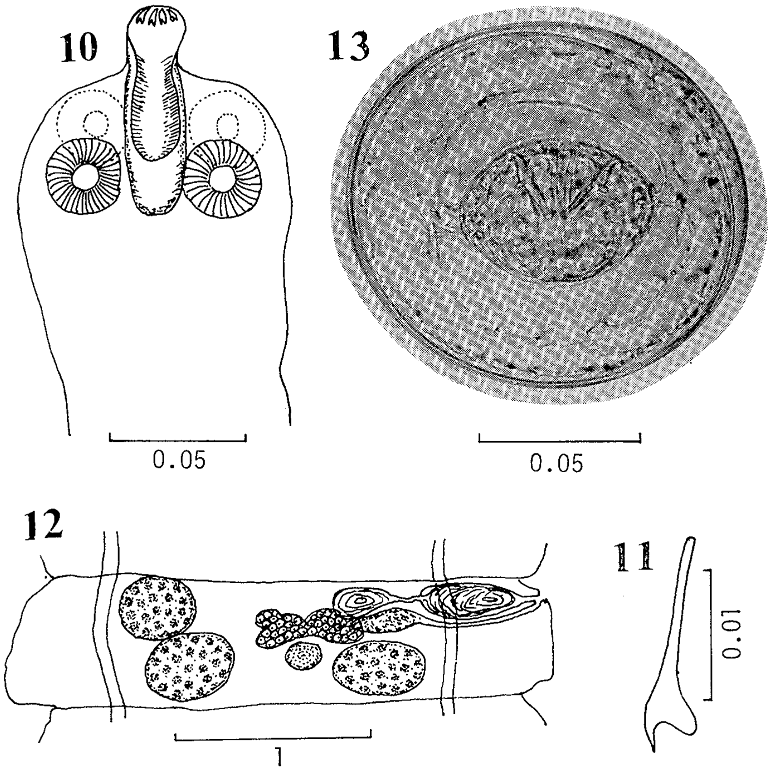
Of other species belonging to *Raillietina* (*Raillietina*) parasitized aves, the present species resembles *R.* (*R.*) *gracia* Whittaker, 1973 from *Quiscalus niger brachypterus.* However, *R.* (*R.*) *oitensis* is discriminated from it in the size of suckers, in the number of testes and in the shape of ovary.

Passerilepis japonensis sp. nov.

(Figs. 10–13)

A specimen of the present species was found in the small intestine of *Corvus macrorhynchos japonensis* collected in Yasugi-machi.

Strobila length 110, maximum width 2.3. Scolex 0.084 long and 0.091 wide, passing gradually into neck which is about 0.224 broad. Proglottides craspedote. Suckers discoid, 0.084–0.091 by 0.077–0.084. Retracted rostellum, 0.056 in diameter and 0.112 in length, lying in a sac, 0.252 by 0.056, which extends to the posterior part



Figs. 10–13. *Passerilepis japonensis* sp. nov.——10. Scolex. 11. Rostellar hook. 12. Mature proglottid. 13. Egg.

of suckers, armed with ten somewhat wrench-shaped hooks measuring 0.030 in length arranged in a single row. Reproductive organ protandrous; genital pores unilateral; pore within anterior 1/3 of proglottid.

Testes 3 in number, measuring 0.119–0.144 by 0.182–0.244, arranged in a form of triangle. Cirrus sac elongated, 0.231–0.245 long and 0.063 wide. Internal seminal vesicle 0.182–0.196 by 0.056 and external seminal vesicle 0.140–0.168 by 0.056–0.063. Ovary transversely bilobate, 0.245–0.252 wide. Vitelline gland small sucular 0.052–0.070 by 0.063–0.070, located just behind ovary. Vagina posteroventral to cirrus sac. Seminal receptacle prominent, 0.154–0.161 by 0.049–0.056.

Eggs spherical, 0.101–0.105 by 0.112–0.119, each containing single spherical onchosphere, 0.035–0.039 by 0.039–0.042, with thick inner membrane with terminal filament; embryonic hooks 0.025 long.

Host. Japanese jungle-crow (*Covus macrorhynchos japonensis*).

Habitat. Small intestine.

Locality and date. Yasugi-machi, Oita Prefecture; November 11, 1978.

Type depository. Biological Laboratory, Nara University of Education, Nara, Japan.

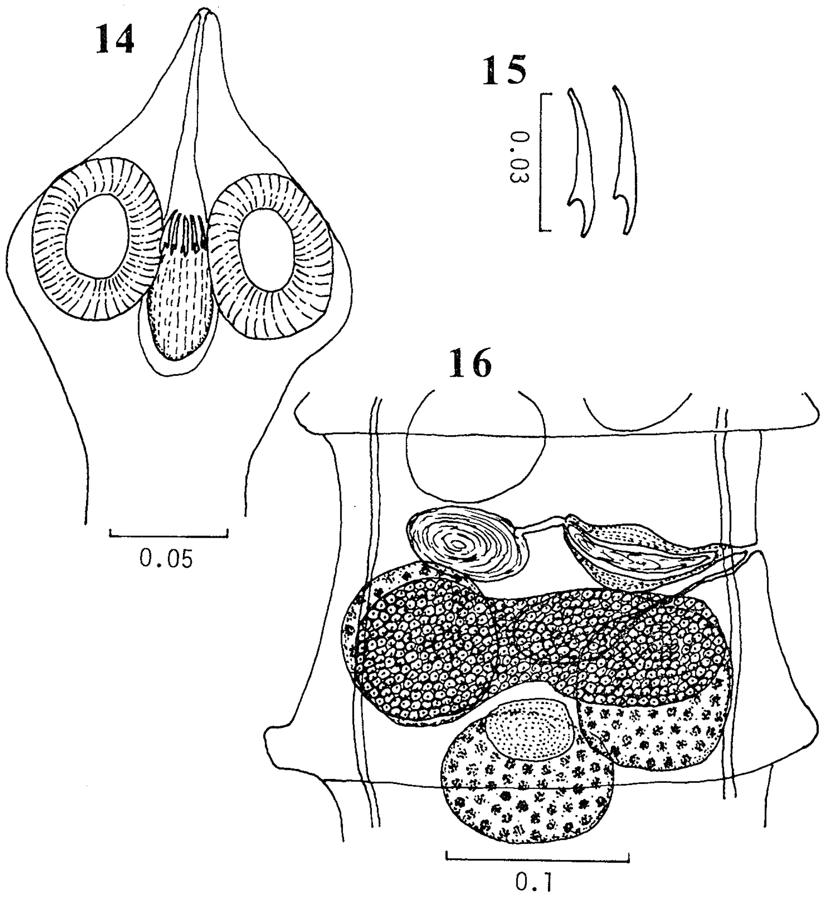
Discussion. So far as the authors are aware, the species of the genus *Passerilepis* amount to about 25 species. Of these, the following four species were described from crows: *P. passeris* (Gmelin, 1790), *P. crenata* (Goege, 1782), *P. dahurica* (Linstow, 1903) and *P. stylosa* (Rudolphi, 1809). In comparing the present species with the above-mentioned four species, it closely resembles *P. crenata*. However, it differs from *P. crenata* in the size and form of rostellar hooks, the situation of genital pores and the size of onchosphere.

Mayhewia macroovata sp. nov.

(Figs. 14–16)

One mallard, *Anas platyrhynchos platyrhynchos*, was examined on January 13, 1979, and 12 specimens of cestodes were obtained from the small intestine. Of these, one is *Haploparaxis japonensis*, one is an unknown species and the remaining 10 belonging to the genus *Mayhewia* Yamaguti, 1956, are a new species described here.

Cestodes 3.2–20.2 in length and 0.3–0.5 in maximum breadth, strobila consisting of 27–123 proglottides with well marked segmentation. Scolex small, measuring 0.245 long and 0.154 broad. Suckers rounded, muscular with shallow cavities and measure 0.084 by 0.096. Rostellum partly introverted, measuring 0.105 long and 0.049 wide and provided with a crown of 10 small wrench-shaped hooks, measuring 0.032 long. Rostellar sac 0.231 by 0.070, extending posterior to suckers. Neck extremely short. Genital pores unilateral and located in the middle or slightly posterior to middle of lateral margin of proglottides. Genital atrium not prominent. Three testes rounded, two of these on aporal side, one behind the other, and one on poral side. Testes measure 0.210 by 0.140. Cirrus pouch much developed, with



Figs. 14–16. *Mayhewia macroovata* sp. nov.——14. Scolex. 15. Rostellar hook. 16. Mature proglottid.

thick muscle wall and extending nearly to the middle of proglottides. External seminal vesicle measures 0.161–0.189 by 0.098–0.105 and internal seminal vesicle, occupying almost cirrus pouch, 0.147–0.154 by 0.028. Armed cirrus short and not convoluted. Accessoly sac lacking. Ovary prominent and consisting of two major lobes which are irregular in shape. It measures 0.42–0.46 broad. Vitelline gland compact, rounded to oval measuring 0.07–0.091 by 0.056–0.077. Vagina open in genital atrium just posterior to male genital pore, arising as a thin tube but soon enlarges to form well developed seminal receptacle, 0.168–0.189 by 0.098–0.133. Uterus not developed in attached proglottides.

Host. Mallard (*Anas platyrhynchos platyrhynchos*).

Habitat. Small intestine.

Locality and date. Ôno-machi, Ôita Prefecture; January 13, 1979.

Type depository. Biological Laboratory, Nara University of Education, Nara, Japan.

Discussion. The present species closely resembles *Mayhewia shibuei* Sawada, 1979, from *Rostratula bengalensis bengalensis* and *Hymenolepis paracompressa*

Czaplinski, 1956, from *Anas rubripes*, *A. platyrhynchos* and *A. acuta*. The present form, however, can be distinguished from *M. shibuei* by the form of rostellar hooks, the situation of genital pores and the size of ovary; from *H. paracompressa* by the size of rostellar hooks and the situation of genital pores (Table 1).

Table 1
A comparison of the measurements of *Mayhewia macroovata* with those of *M. shibuei* and *Hymenolepis paracompressa*.
(All measurements in microns unless otherwise stated.)

	Mayhewia shibuei	*Hymenolepis paracompressa*	*Mayhewia macroovata*
Strobila (mm)	58–60×1.1–1.4	3.6–37.6×0.55–1.05	3.2–20.2×0.3–0.6
Scolex	224–328×210–224	136–158×185–270	245×154
Suckers	98–105×84–105	65–90×110–120	84×98
Rostellum	28–35×98–117	35×105	49×105
Rostellar hooks			
Number	10	10	10
Length	32–35	53.5–59.6	32
Position of genital pores*	MA	MA	M or MA
Ovary (broad)	210–245	210–308	420–460
Testes	138–166×166–180	39–130	210×140
Cirrus pouch	180–210×35	230–440×50–87	182–196×77
Cirrus	—	31–37×17–22	—
Vitelline gland	42–35×42	47–70×90–126	70–91×56–77
Eggs	46–56×53–70	25–29×33–36.8	—
Onchosphere	21–25×21	19–22×20–24	—

* MA—— The genital pores are located in front of the middle of proglottid margin.
M —— The genital pores are located in the middle of proglottid margin.
MP —— The genital pores are located in the posterior to the middle of proglottid margin.

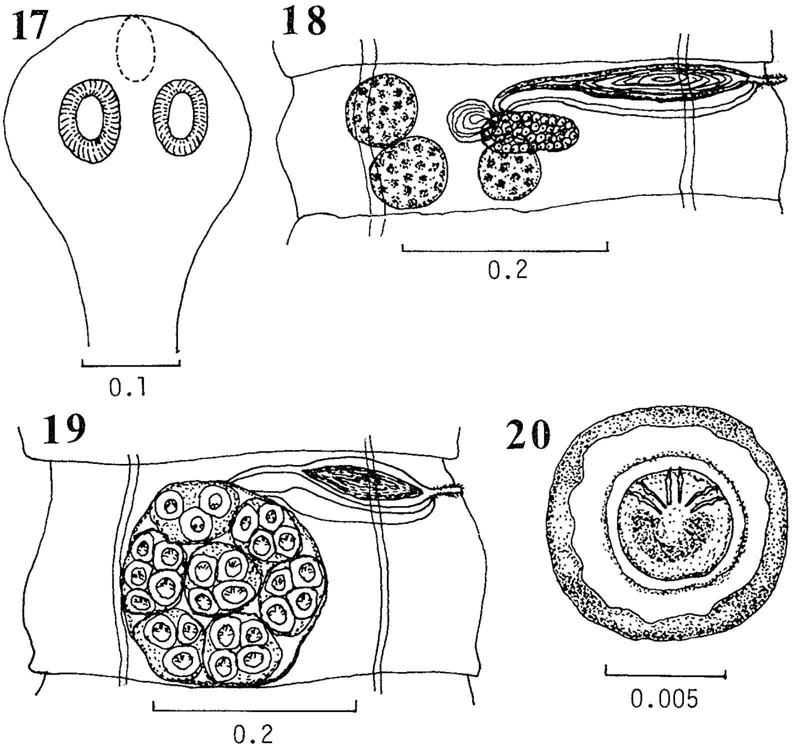
Hymenolepis* (*Weinlandia*) *kyushuensis sp. nov.

(Figs. 17–20)

On February 17, 1979, a hondo copper, *Phasianus soemmeringii scintillans*, collected at Yamaga-machi, was examined for cestodes. On investigation, the bird was infected with 12 tapeworms belonging to the genus *Hymenolepis*. The present new form is extremely thin, thread-like cestodes.

Worm length 50–120 and 0.3–0.5 in maximum breadth at gravid proglottides. Proglottides broader than long throughout strobila. Scolex flattenend dorsoventrally, 0.3 long and 0.25 wide. Suckers shallow, 0.08 by 0.0625, unarmed. Rostellum rudimentary. Genital pores almost entirely unilateral, a single pore being the extreme anterior margin of proglottid.

Male genitalia: Testes three in number, situated in aporal side of proglottid, one poral and two aporal in position and arranged in a low triangle. They measure



Figs. 17–20. *Hymenolepis* (*Weinlandia*) *kyushuensis* sp. nov. —— 17. Scolex. 18. Mature proglottid. 19. Senile proglottid. 20. Egg.

0.042–0.049 by 0.049. Cirrus sac elongate, 0.175 long and 0.014 wide, extending to median line of proglottid. Internal seminal vesicle, occupying almost cirrus sac, 0.088 by 0.011 and external seminal vesicle 0.035 by 0.028. Cirrus spiny, measuring 0.028 long and 0.007 wide.

Female genitalia: Opening of vagina in floor of genital pore and posterior to cirrus opening. Inner side of sphincteral vagina gradually increases in diameter. Seminal receptacle indistinct. Compact, slightly elongate ovary centrally placed, measuring 0.033 by 0.028 and overlapping poral testis. Vitelline gland indistinct. Uterus in gravid and senile proglottides forming a strong ovoidal capsule at aporal field. It measures 0.105–0.119 by 0.119–0.133. Ovoidal capsule filled with 12–14 egg pouches, each of which is sorrounded by a thin transparent membrane, containing 2–5 eggs. Egg spherical, 0.11 in diameter and surrounded by thin transparent membranes. Onchospheres spherical in shape, measuring 0.0275 by 0.035; embryonic hook 0.0125 long.

Host. Hondo copper pheasant (*Phasianus soemmeringii scintillans*).

Habitat. Small intestine.

Locality and date. Yamaga-machi, Hayami-gun, February 17, 1979.

Type depository. Biological Laboratory, Nara University of Education, Nara, Japan.

Discussion. Of the species of *Hymenolepis*, with unarmed suckers and unarmed rostellum or rudimentary rostellum, the following six species can be found in the literature as the parasites of birds: *Hymenolepis cantaniana* (Polonio, 1860) from *Meleagris*, *Gallus*, *Numida*, *Phasianus*, *Pavo* and *Perdix*, *H. cordobensis* Jordano, 1952, from *Columba livia domestica*, *H. infrequens* Sharma, 1943, from *Anas boshas*, *H. inhamata* Rietschel, 1934, from *Eupetomena macroura*, *H. lamella* Woodland, 1930 from *Tadorna radjah* and *H. tonkinensis* from *Surniculus lugubris dicruroides*. The present species should be regarded as new, because it distinctly differs from any of the above-mentioned species in combination of characters.

Mayhewia shibuei Sawada, 1975

On July 20, 1978, two painted snipes, *Rostratula benghalensis benghalensis*, collected at Ôita City were examined for cestodes. One of the two was infected with 12 specimens of this cestode.

Dilepis capella Yamaguti, 1935

Another painted snipe, *R. b. benghalensis*, collected at Ôita City, was infected with three cestodes belonging to the above species. This is the first record of the cestode from *R. b. benghalensis* in Japan.

Orthoskryabinia macrorostellata Sawada et Kugi, 1979

On February 19, 1979, a Japanese scope owl, *Otus scops japonicus* was collected at Ume-machi. On investigation, the bird was infected with 13 specimens of the present species.

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